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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/936,092 | 09/07/2001 | Xiabin Bai | 13479-002001 | 9194 |
| 26161 | 7590 | 11/13/2003 | EXAMINER | |
| FISH & RICHARDSON PC 225 FRANKLIN ST BOSTON, MA 02110 | | | ELKASSABGI, HEBA | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2834 | |

DATE MAILED: 11/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/936,092

Applicant(s)

BAI ET AL.

Examiner

Heba Elkassabgi

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09/07/2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 15-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☒ Claim(s) 12-14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I in Paper No. 0603 is acknowledged. However, Group II of claims 15-17 are pending in the application till application specifically states that Group II is canceled.

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/936092, filed on 09/07/2001.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 04/24/2002. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the claimed subject matter of claim 12-14 of a slot less stator having windings wound, as a single layer over

the stator core must be shown or the features canceled from the claims. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1,2,3,4,5,7,8, 9,10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura (U.S. patent 6541887) and further in view of *In re Leshin* and *In re Aller*.

Kawamura discloses in Figure 2 and 4 illustrate a multiple-pole electric machine comprising a rotor (3) and a stator (4), wherein the rotor (3) is of permanent magnet of electric excitation. The number of poles (12) of the stator core (37) is 8 or more. The armature (stator) winding (8) is formed by solid wires and is arranged into layers in a slot to form a wave winding with an unequal pitch phase. Furthermore, each turn of the

winding (8) in the stator slot (12) contacts the wall of the stator core (37). Additionally, the armature (stator) winding (8) is located in the slot with a single strand of the wires in each layer and both two sides of the wires contact the wall of the stator core (37). A rotor (3) is of electric exciting machine, in which the slot of the stator core (37) that are straight, each pole (11) occupies one slot and that a winding is a pole-pitch wave winding wound by a single strand of solid wires (winding) (8) and can either be lapped or not lapped at the extension. Wherein each stator pole (11) has m slots (12) and a phase winding is resulted by m windings (stator windings 8) on each layer, and m windings (stator windings 8) are arranged to cross m adjacent slots (stator slots 12) in the same direction and not lapped at the extension. There is an inclination between the permanent magnet pole of the rotor (3) and the tooth slot of the stator (4). Each stator pole (11) m slots, in which m phase windings (stator windings 8) are formed on each layer by m windings (stator windings 8), and each phase winding is formed by a pole-pitch wave winding.

In regards to claim 1, Kawamura discloses the claimed invention except for the material choice of the stator core. It would have been obvious to one having ordinary skill in the art at the time the invention was made to choose a suitable material such as iron, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

In regards to claim 8, Kawamura discloses the claimed limitations except for the number of slots belonging to each pole of the iron core is $m \times k$, and all m phase windings on each layer may be obtained by translating said phase winding comprising k windings by $n \times k$ slots, where n is an integer. It would have been obvious to one having ordinary skill in the art at the time the invention was made to choose a preferred range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

In regards to the claim limitation of claim 11 Kawamura discloses the claimed invention except for the length of the iron core being where, L is met: $L \times t \sin(g) \leq 2T$, where T is the tooth pitch, g is an inclined angle. It would have been obvious to one having ordinary skill in the art at the time the invention was made to choose a preferred range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura (U.S. patent 6541887) and further in view of In re Leshin as applied to claim 1 above, and further in view of Maeda et al. (U.S. Patent 6604272).

Kawamura in view of In re Leshin disclose all of the claimed limitations of the base claim, However, Kawamura does not disclose a double coil segment. In which, Maeda et al. discloses in figure 11 an armature winding (stator winding 23) is located in the slot (26) with double-strand of the wires (windings) in each layer, in which there is one on the left side and the right side of the wires contacting the wall of the stator core (22), in order to provide a low noise and corrosion resistant generator.

Allowable Subject Matter

Claims 12 –14 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: Independent claim 12 is allowable over the prior art, which does not disclose a slot less stator core in which the stator winding is a single layer. Claims 13 –14 are dependent on to claim 12. However, Claims 12-14 are objected to, in that the drawings do not disclose a slot less stator core with a single layer of windings wound around the stator core and that a disclosed rotor with 8 or more slots.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Heba Elkassabgi whose telephone number is (703) 305-2723. The examiner can normally be reached on M-Th (6:30-3:30), and every other Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

HYE

Thomas M. Brough